

SYNOPSIS OF THE NORTH AMERICAN FLIES OF THE GENUS TACHYTRECHUS.

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INTRODUCTION.

This synopsis is based entirely on the type material and all the types have been examined by the author. The location of the type is designated under each species.

I wish to acknowledge my thanks to Dr. J. M. Aldrich for his helpful criticism and suggestions and record his generous gift of material from his collection to the national collection. To Mr. Nathan Banks for making some additional comparisons at the Museum of Comparative Zoology, Cambridge, Massachusetts. To Mr. M. C. Van Duzee for the gift and loan of material, and to Mr. H. S. Harbeck for the gift of some specimens.

The types of all the new species are deposited in the United States National Museum.

HISTORICAL OUTLINE OF THE GENUS.

The genus *Ammobates* was established by Stannius in 1831¹ with the three species *plumipes*, *notatus*, and *insignis*, all new. Haliday in 1851 changed the name to *Tachytrechus*² on account of the pre-occupation of *Ammobates*. Coquillett in 1910³ designated *Ammobates notatus* Stannius as the type.

In 1878 Mik⁴ divided the genus into two genera by the following characters:

Male antennae normal, like those of the female; fourth longitudinal vein ending just before the extreme apex, at a considerable distance from the tip of the third.....*Tachytrechus*.

¹ *Isis* von Oken, 1831, Heft 1, pp. 33, 268.

² *Idem*, p. 261. *Tachytrechus* Stannius is a *nomen nudum*.

³ Type-species of the North American Diptera, Proc. U. S. Nat. Mus., 1910, vol. 37, p. 611.

⁴ *Dipterologische Untersuchungen*, 1878, p. 3.

Male antennae with the second joint rudimentary and the arista elongated and ending in a lamella; fourth vein ending considerably before the apex, very close to the tip of the third vein.....*Macellocerus*.

The common or general characters of *Tachytrechus* are as follows: First antennal joint hairy above, arista dorsal, face long, narrow, wider below and with the tip rounded, reaching as low as the inferior border of the eye; wings narrow, in the male especially, but rather broad in one species [*T. rotundipennis*]; hypopygium of the male entirely disengaged, directed forward under the venter, reaching nearly to the coxae; hind metatarsi without bristles above.

The characters used by Mik to separate *Macellocerus* from *Tachytrechus* were mostly male characters. After a careful study of the two genera I consider them to be one genus, although the males do divide satisfactorily into two groups by the antennae.

The genus divides naturally into three groups on the male characters: 1, wing with a maculation at the apex; 2, arista very long with a lamella at the tip; wing without maculation; 3, arista short and normal; wing without maculation.

Genus TACHYTRECHUS Haliday.

Key to the males.

1. Wing with a black spot at the apex.....2.
Wing without a spot.....6.
2. Spot large, round with a very narrow hyaline border around the lower edge; no snow-white spot.....No. 4. *floridensis* Aldrich
Spot black with a snow-white spot behind it.....3.
3. White spot nearly equal in size to the black spot.....4.
White spot much smaller than the black spot.....5.
4. White spot at apex of wing, rounded and nearly equal in size to the black one; wing narrow and pointed.....No. 3. *vorax* Loew.
White spot like a half crescent; black spot very large and rounded; wing very broad and rounded.....No. 2. *rotundipennis*, new species.
5. Black spot long, narrow and pointed below; white spot very long and narrow.....No. 1. *simulatus*, new species.
Black spot large; white spot very small and hemispherical.
No. 5. *volitans* Melander.
6. Arista short, normal, no lamella.....7.
Arista very long, with a terminal lamella.....9.
7. Hind tibiae with two or three flattened bristles on the posterior side.
No. 15. *angustipennis* Loew.
Hind tibiae without such bristles.....8.
8. Middle tarsus with the second joint extremely broad, flattened, tarsus conspicuously ornamented.....No. 14. *granditarsus*, new species.
Middle tarsus normal, except the third joint is slightly bent.
No. 16. *protervus* Melander.
9. Arista with a lamella at the apex and another in the middle.
No. 6. *binodatus* Loew.
Arista with a lamella at the apex only.....10.

10. Femora entirely yellow-----11.
 Femora black or yellow with blackish infuscations-----14.
11. Front femora with long crinkly or straight hairs-----12.
 Front femora without long hairs-----13.
12. Front femora with long crinkly hairs on the outside surface.
 No. 11. *auratus* Aldrich.
 Front femora with long straight hair on the under side.
 No. 7. *bipunctatus*, new species.
13. Femora and tibiae entirely yellow; middle tibiae with three or four large macrochaetae on the apical half of the inner flexor side; also a row of large bristly hairs the entire length of the outer flexor side.
 No. 8. *tenuiseta*, new species.
 All femora yellow; hind tibiae yellow with a blackish infuscation at the tip; arista slightly longer than height of head, lamella large and rounded.
 No. 12. *moechus* Loew.
14. Front femora yellow, very much enlarged on basal half; with a large brownish-black spot on the outside-----No. 10. *olympiae* Aldrich.
 Front femora normal-----15.
15. Front femora yellow; middle and hind femora faintly blackish at the base; middle tibiae with one large macrochaeta on inner flexor side near the apex-----No. 13. *sanus* Osten Sacken.
 All femora greenish black; front tibiae pale yellow; extremely broad on apical two-thirds; with a row of black, flat bristles on flexor side.
 No. 9. *laticrus* Van Duzee.

Key to the Females.

1. Wing with an apical cloud-----No. 1. *simulatus*, new species.
 Wing without any cloud-----2.
2. Antennae entirely black-----3.
 Antennae black and yellow-----7.
3. Legs black-----4.
 Legs mostly gray or yellow-----5.
4. Front tibiae with four extremely long macrochaetae on outer flexor side; hind femora with a bronze reflection----No. 2. *rotundipennis*, new species.
 Front tibiae with two small macrochaetae on outer flexor side; hind femora with a green reflection-----No. 15. *angustipennis* Loew.
5. Legs with red or yellow markings-----6.
 Legs without any red markings-----No. 4. *floridensis* Aldrich.
6. Legs mostly pale yellow with only small blackish infuscations.
 No. 5. *volitans* Melander.
 Legs mostly reddish-yellow-----7.
7. Hind femora black with silver and green reflections; apical third reddish-yellow; hind tibiae reddish-yellow with apex blackish. Species with a bright green or red reflection (western)---No. 14. *granditarsus*, new species.
 Hind femora the same as above with only the apices reddish-yellow; bronze species-----No. 3. *vorax* Loew.
 Characters not as above-----8.
8. First antennal joint entirely yellow-----9.
 First antennal joint infuscated above-----10.
9. Femora entirely yellow-----No. 11. *auratus* Aldrich.
 Femora entirely black-----No. 9. *laticrus* Van Duzee.
 Femora black with apical third yellow-----No. 13. *sanus*. Osten. Sacken.

10. Front tibiae with three extremely long macrochaetae on the outer flexor side.....No. 16. *protervus* Melander.
 Front tibiae with a row of short bristles near the outer flexor side.
 Front tibiae not as above.....No. 8. *tenuiseta*, new species. 11.
11. Femora mostly yellow with gray or black markings.....12.
 Femora mostly blackish or red.....13.
12. Front femora with a gray spot on the outside near the base; front coxae ashen gray in front.....No. 7. *bipunctatus*, new species.
 Front femora with a gray spot on the underside near the base; front coxae yellow in front at the apex.....No. 10. *olympiae* Aldrich.
13. Hind femora reddish-yellow with a deep infuscation from base to apex; posterior cross-vein deeply bowed in center.....No. 6. *binodatus* Loew.
 Hind femora paler yellow with an infuscation on basal two thirds only; posterior cross-vein nearly straight.....No. 12. *moechus* Loew.

1. *TACHYTRECHUS SIMULATUS*, new species.

FIGS. 5, 6.

Male.—Face twice as wide on lower part as it is immediately below the antennae; face stops far short of lower edge of eyes; a very narrow green stripe in center, balance of face heavily coated with brown dust, dull; front dark green dusted with grayish-white around the sides; ocellar triangle black, ocelli yellow. Orbital cilia and mouth parts black. Antennae black, each of the three joints of nearly equal length, first joint beset with black hairs above; arista pale on apical half gradually thickened on lower half toward base. Orbital cilia black. Thorax and scutellum green with a bronze and white pruinose reflection according to the position in the light. Abdomen bright green with a white pruinosity. Hypopygium large, black with dark red areas on the side, black areas with a whitish pruinosity; lamellae slightly triangular, brown black, cilia black. Legs coated with a whitish dust the entire length, femora green, knees reddish-yellow; tibiae and tarsi darker reddish-yellow, a slight infuscation at apex of tibiae and on the tarsal joints. Wings broadly rounded at apex (much broader than in *vorax*) large black dot in the apex, most of which is behind the fourth vein and the dot is decidedly pointed behind, tip of wing has a long, narrow, snow-white spot; tegulae deep yellow, cilia long and black; halteres deep yellow, slightly infuscated at base.

Length 5 mm.

Female.—Like the male except it is slightly more robust; face and front slightly paler; wings with a small brownish cloud at the apex. This is the only female in the genus with a wing maculation.

Type locality.—St. Anthony, Idaho, July 16, Dr. J. M. Aldrich, collector.

Described from three males and one female.

Type, Male.—Allotype, female, Cat. No. 24130, U.S.N.M.

A male and the female from Nanaimo, British Columbia Biological Station, June 25–28, 1920; E. P. Van Duzee, collector. Two males returned to the California Academy of Sciences.

Allied to *vorax* but is easily separated from this species by the shape of the wing and the apical spot; the face being much shorter; color of the face and front and the abdomen being bright green instead of bronze.

2. TACHYTRECHUS ROTUNDIPENNIS, new species.

Fig. 2.

Male.—Face twice as wide on lower part as immediately below the antenna; face stops far short of lower edge of eyes and it is heavily coated with a golden yellow dust, dull; front dark green dusted with dark brown around the sides; ocellar triangle blackish, ocelli reddish. Orbital cilia black on apical half, white on lower half. Mouth parts brownish black. Antennae black, first joint about three-fourths the length of the second and third together, beset with short black hairs above; arista black and thickened gradually on the basal half. Thorax and scutellum bronze green with dark-brown dust, sides of thorax bronze heavily dusted with white. Abdominal segments broadly green at their bases and dusted with white, especially on each side; at the apex of each segment is a dark, bare, bronze area. Hypopygium large, dusted with yellowish-white except a small area on each side at apex; lamellae large, about three times as long as wide, brown black, cilia black, quite long on outer edge. Femora dark bronze green coated with a white dust, apex of fore and middle pair broadly, hind pair more narrowly yellow; all tibiae yellow, apices of tibiae and entire tarsi infuscated with reddish brown. Wings very broadly rounded on the apical half and with a slight indentation of the margin at the fifth vein. A large round, black dot at tip of wing, bisected by the fourth vein, behind this is a smaller white dot somewhat triangular in form; tegulae pale yellow with long black cilia; halteres deep yellow, slightly darker at base.

Female.—Like the male except the wing does not have the spots.

Length 5 mm.

Type locality.—"Delaware VIII" (no other data), from Dr. J. M. Aldrich.

Described from two males and two females.

Type, male.—Allotype, female and two paratypes. Cat. No. 24131, U. S. N. M.

One male and two females from Manahawkin, New Jersey, September 5, 1910; H. S. Harbeck, collector.

Allied to *T. simulatus* Greene, but easily separated from that species by the very broad wing, the shape of the spots at the apex of the wing and the color of the orbital cilia.

3. *TACHYTRECHUS VORAX* Loew.

Fig. 1.

Tachytrechus vorax LOEW, Neue Beitrage, 1857, vol. 8, p. 41.

Male.—Face reaching lower edge of eyes, upper portion about three-fourths as wide as the lower, covered with a dull, yellowish dust; front a velvety brown. Antennae entirely black; first joint nearly equal in length to the other two, enlarged towards the apex, having a thumblike projection on the inside at the apex; second joint not quite so long; third joint rounded on outer edges. Arista black, bare and thickened on the basal third. Orbital cilia black above, white below. Thorax on upper side with a gray-yellowish or brownish-yellow dust upon a metallic-green or partially copper-colored and lustrous ground, very dull. Abdomen green and coppery, dull, with a gray-whitish dust. Hypopygium black, upon the inferior side more greenish-black, but gray from a pale dust; lamellae black, moderate size, slightly rounded, covered with black hairs. Femora dark metallic-green, thinly pruinose with whitish dust, tip brownish-yellow; tip of the fore and hind tibiae blackened, tip of middle tibiae usually only brown. Tarsi black, plain, fore tarsi usually brownish-yellow only at the extreme root, middle tarsi brownish-yellow upon the first half of the first joint. Wings narrow, large black spot nearly bisected by the fourth vein, behind this spot is one of snow white covering the extreme apex of the wing, and nearly equal size; halteres infuscated with brown, tegulae pale yellow with long black cilia.

Female.—Face and front pale silvery yellow, dull, face slightly broader than in the male. Abdomen more greenish. Yellow of the legs more reddish. Wing without spot, slightly tinged with brown and more rounded at the apex.

Length 5-6 mm.

Type locality.—District of Columbia.

Type.—In Museum of Comparative Zoology, Cambridge, Massachusetts.

Distribution.—Lafayette, Indiana, May 27, 1915, to July 27, J. M. Aldrich; Boulder, Colorado; Franconia, New Hampshire; Battle Creek, Michigan; Chesterton, Indiana, June 2, 1916, J. M. Aldrich; Michigan City, Indiana; Santa Monica, California, July 31, 1911; Brookings, South Dakota, Westville, New Jersey, August 18, C. W. Johnson; Barcroft, Virginia, and Avalon, New Jersey, August 8, 1909, C. T. Greene; Trenton, New Jersey, August 7, 1910, H. S. Harbeck.

4. TACHYTRECHUS FLORIDENSIS Aldrich.

Fig. 4.

Tachytrechus floridensis ALDRICH, Trans. Amer. Ent. Soc., 1896, vol. 23, p. 82.

Male.—Face silvery white, nearly twice as wide on the lower part as it is immediately below the antennae. Front greenish, heavily coated with a whitish dust. Antennae black, first and second joint a little elongated; third joint rounded. Arista black, slightly longer than the antennae. Orbital cilia mostly white, just a few black bristles above. Thorax green, heavily coated with a white dust around the sides, more of a brownish in the center. In some lights the green ground color is quite visible. Just above the root of the wing is a dark brown spot. Scutellum green with a coating of golden brown dust. Abdomen metallic green heavily coated with a white dust; down the center of the dorsum and along the apical edge of each segment more shining, near the apical edge of each segment is a transverse row of large black bristles. Hypopygium large, first joint small, next joint large and globular, covered with a whitish dust and fine black hairs, lower edges shiny reddish-black; lamellae nearly black, somewhat triangular; the outer lower edge rounded and with long black hairs. All the coxae dark with a silvery dust. Front and hind femora on their basal two-thirds and the middle pair on slightly more than their basal half, greenish covered with a silvery dust; tibiae reddish-yellow with brownish tips and all tarsi dark brown. Wings hyaline, slender, rounded at tip with a large, round blackish brown spot at apex; this spot extends narrowly before the third vein and is separated from the posterior edge of the wing by a very narrow hyaline margin. Posterior cross vein straight. Halteres pale yellow. Tegulae pale yellow with long black cilia.

Female.—Very much like the male except as follows: Face only slightly wider. Antennae a little shorter. Wings not quite so narrow and without the apical spot. On the outside of the fore tibiae there are one or two small black bristles in a third series.

Length 5 mm.

Type locality.—Florida, F. H. Snow, collector.

Cotype, male and female.—Cat. No. 24140, U.S.N.M. Deposited by J. M. Aldrich in United States National Museum collection. Originally described from two males and two females, labeled "Fla."

One specimen, a male, from Biscayne Bay, Florida, Mrs. Slosson, collector. In United States National Museum.

5. TACHYTRECHUS VOLITANS Melander.

Fig. 3.

Tachytrechus volitans MELANDER, Can. Ent., 1900, vol. 32, p. 143, fig. 8.

Face broad, dull, pale yellow (in certain lights pale golden), wider below, narrower above (just below the antennae). Front dull.

dark velvety brown; ocellar triangle slightly darker, dull brown. First two joints of antennae blackish; first joint when viewed from behind, brownish; when viewed from in front, opaque-black, except inner projection; about one and one-half times the length of the second; third joint missing. Thorax with the ground color of brilliant metallic copper-color, shining through a thick coating of brown dust; a broad central stripe shining; sides with a pale brown and in certain lights with a nearly white pruinosity. Abdomen deep bronze, sides reddish broadly though lightly dusted with a whitish pruinosity. Hypopygium large, black; stem short and fairly thick; lamellae dull black with longer hairs on the outer edge. Legs mostly bronze blackish with whitish pruinosity; tips of all tibiae and tarsi black (except base of metatarsi). Tips of all femora, greater part of the tibiae and base of metatarsi faintly reddish yellow. Front coxae half as long as the front femora and about twice as thick as same. Pulvilli relatively longer than in *floridensis*, snow-white. Wing with a large black spot at apex, touching the third vein in front and bisected by the fourth; a small, hemispherical, snow-white spot behind at the tip of the wing. Halteres deep brownish yellow on the knobs, base of stem nearly black.

Female.—Very much like the male except as follows: Wing entirely hyaline. General color of body and dark portions of the legs more greenish. Central stripe of thorax not polished, nearly as dull as the sides. Abdomen more greenish and with more white pruinosity. Legs paler yellow, this color more noticeable than the black.

The male is labeled "12 m. N. W. of Lusk, Wyo. July, '95; U. of K. Lot 428; Type; W. M. Wheeler, collection." The female labeled the same except Lot 430. Both specimens in the collection of the American Museum of Natural History, New York City.

6. TACHYTRECHUS BINODATUS Loew.

Fig. 14.

Tachytrechus binodatus LOEW, Centuries, 1861, pt. 7, No. 84, p. 106.

Macellocerus binodatus LOEW, Trans. Amer. Ent. Soc., 1896, vol. 23, p. 83.

Male.—Face about as long as the eye; dull golden-yellow; just below antennae about half as wide as at lower end. Front bronze green, not very shiny. Ocelli yellowish. Antennae mostly bright yellow; first joint swollen at apex, nearly as wide at apex as it is long, black, bristly hairs above; second joint quite small and rudimentary; third joint slightly rounded, mostly brownish-black, a little yellow along the base. Arista mostly black, slightly swollen at base, a lamella in the middle and another at the tip; the outer half of the stem and the base of the apical lamella white. Orbital cilia black above and whitish below. Thorax and scutellum bronze-green covered with a brown dust; two velvety black spots in front of the base of the wings, the anterior spot not very distinct. Abdomen more brassy-green coated

with a yellowish-white dust; apical edge of each segment narrowly brownish-black. Hypopygium large, brassy or bluish-green coated with a yellowish-white dust; lower edges shiny, black to reddish; lamellae brown, yellowish at base, hairs brownish-black. On the outer lower corner is a finger-like projection. Front coxae yellow, gray on underside; middle and hind ones grayish-black. Legs and base of all metatarsi yellowish at the base. Tips of fore and hind tibia, bases of the middle and hind femora and the remainder of the tarsi blackish-brown. Front femora decidedly broadened on the basal two-thirds, on the inner side is a large, elliptical bare spot. Wings faintly tinged with brown, edge faintly curved inward before and after the fifth vein; posterior cross-vein with a deep bend in the middle. Halteres pale yellow. Tegulae pale yellow, fringes long and black.

Female.—Very much like the male except darker in color and more robust. Face wider, silvery. Front grayish-brown with a whitish dust. Antennae shorter, third joint with more reddish-yellow. Arista black, about three-fourths as long as face, thickened on the basal third. Apical end of fore and middle femora, outer surface of hind femora, basal fifth of middle and hind tibiae, fore tibiae except apical end, and basal half of all the metatarsi reddish-yellow; balance of the legs infuscated with dark brown. All legs dusted lightly with a whitish dust. Wings faintly tinged with brown, broader and not so deeply incised on posterior edge. Posterior cross-vein deeply but more broadly arcuate.

Length 5 mm.

Type-locality.—Saratoga, New York, Osten Sacken.

Type.—In the Museum of Comparative Zoology, Cambridge, Massachusetts.

Distribution.—Battle Creek, Michigan; Ira, Summit County, Ohio, September 10, 1894; Lafayette, Indiana, May 22, 1915. Four specimens deposited in United States National Museum Collection by J. M. Aldrich. Durham Pond, Morris County, New Jersey, August 18, 1901, George M. Greene, collector.

7. TACHYTRECHUS BIPUNCTATUS, new species.

Figs. 13, 18.

Male.—Face twice as wide at each end as it is about one-third the distance below the antennae, densely coated with a yellow dust, dull and slightly shorter than length of eyes. Front deep green, in certain lights with a dark brown area in middle; ocellar triangle dark green, ocelli very pale yellow. Antennae mostly yellow, first joint quite large, twice the length of the third, slightly infuscated at tip; second joint very rudimentary, third joint somewhat rounded, brown-black

except the base and lower corner which is yellow. Arista longer than the face, black, thickened at base only, lamellae black, elliptical, with a white elliptical spot on upper edge at the base. Thorax and scutellum dark green bronze with a dark brown dust. Abdomen a lighter, brassy green, coated with a golden brown dust. Hypopygium large, pedicel whitish pruinose on upper side with a greenish reflection in certain lights and slightly corrugated, shiny reddish-black below, second joint from the side, triangular with whitish pruinosity and long black hairs, last joint very large, heavily pruinose, basally with a lavender tint, otherwise pale green with two smoother black dots in the center, lower portion on the sides shiny reddish-black, lamellae broad, pale yellow with long black hairs. Legs all yellow except extreme tips of middle and hind tibiae and all tarsi, blackish. Front femora with long, straight black hairs on lower side. Wings slender, faintly tinged with brown; tegulae pale yellow with long black cilia; halteres pale yellow.

Female.—Very similar except the general color is slightly darker. Face is more silvery, antennae shorter, third joint all black except a very small area at lower corner, arista normal, not quite as long as the face and brown in color, darker at the base. Orbital cilia whitish close to the oral margin. Legs more reddish, apical two-thirds of front tibiae blackish; front coxae and a large spot on under side of front femora, at the base, silvery gray. Infuscation on the tibiae extends more on apical half, but is much darker on apical fourth.

Length, 6 mm.

Type locality.—St. Anthony, Idaho. Dr. J. M. Aldrich, collector.

Described from three males and one female. Two males and the female from St. Anthony, Idaho, July 16, 1900, and a male from Soda Spring, Idaho, June, 1900, J. M. Aldrich, collector.

Type, male.—*Allotype*, female, and two paratypes. Cat. No. 24132, U.S.N.M.

Closely allied to *T. auratus* Aldrich, but easily separated by the straight hairs on the front femora, the size of the antennae, the small lamella of the arista and the hypopygium has two small dark spots. This species is also larger in size than *auratus*.

8. TACHYTRECHUS TENUISETA, new species.

Fig. 10.

Male.—Face just above the middle about one-third to one-half the width of the lower part and heavily coated with a golden brown dust; front deep green, not very shiny, ocellar triangle black, ocelli pale yellow. Orbital cilia and mouth parts black. Antennae entirely yellow; first joint about twice the length of two and three together; this joint has a thumblike projection on the inside near the apex; second joint rudimentary; third joint quite short and

rounded. Arista about twice the length of the head; lamellae rounded at tip, tapering down to a point at the base, and below this is a snow-white area nearly as long as the lamella; stem black, very slender and slightly thickened at extreme base. Thorax and scutellum very dark green with brown dustlike reflections in certain lights; scutellum dark green. Abdomen brighter green in certain lights, blackish along apical edge and very broadly silvery-white pollinose on basal three-fourths. Hypopygium large, yellowish at base, whitish in center and blue green on apical third, the edge and projecting parts reddish-black and heavily chitinous; lamella yellow, somewhat triangular in shape, fringe brown. Femora, tibiae, and basal three-fourths of middle metatarsi yellow, rest of middle tarsus and all of hind tarsus brownish; front tarsi all yellow with silvery pruinosity, but in certain lights it is slightly infuscated above with brown. Front tibia has a row of black macrochaetae on the front and side; between these two rows is a row of fine, short, bristly hairs, and two or three large macrochaetae near the base. Wings very faintly tinged with brown on apical half; tegulae whitish yellow with long black fringe; halteres yellow; stems slightly brownish on base.

Female.—Very much like the male, except the following points: Face immediately below the antennae nearly as broad as the lower part, heavily coated with silvery dust, slightly shorter than the length of eye. Antennae little darker, third joint nearly all black, reddish along lower basal edge. Arista normal, about as long as face. Legs deep brown, except apical third of all femora and basal half of all tibiae reddish yellow; all femora with a deep greenish reflection.

Length, 4-5 mm.

Type locality.—Newport, Oregon, August 12, 1902; J. M. Aldrich, collector.

Described from two males and eight females.

Type, male.—*Allotype*, female and three paratypes. Cat. No. 24133, U.S.N.M.

Allied to *T. sanus*, but is easily separated by the difference of the antennae, arista, hypopygium, and the bristles of the front tibia. In *sanus* the middle row of bristly hairs are longer and the two or three macrochaetae at the base are absent.

9. TACHYTRECHUS LATICRUS Van Duzee.⁵

Figs. 15, 17.

Tachytrechus laticrus VAN DUZEE, Ent. News, 1918, p. 46.

Male.—Face as long as the eye height, golden yellow, dull, just below the antennae about one-third as wide as the lower part. Front

⁵ This species was first identified by D. W. Coquillett, but the description was never published.

dull, blackish, covered with a little yellowish dust. Antennae entirely light yellow and short; first joint swollen at apex, nearly equal to the length, short bristly hairs on upper side at apex only; second joint quite rudimentary; third joint slightly rounded. Arista about as long as the face, entirely black. About the basal fifth is straight, at the end of this fifth it appears to be broken or bent and from here it tapers on to a very thin stem; at the apex is a small elliptical lamella pointed at the tip. Orbital cilia black. Thorax mostly blackish, covered with a dark-brown pollen. There is a bluish-green area covered with a white pollen reaching from one wing around the edge to the other wing. This area is broken by a brown stripe in the middle of the front edge of the thorax. The posterior corners of the thorax are flattened and covered with a white pollen, just above each of these spots is a small area, somewhat triangular, covered with a silvery dust. On the side of the thorax opposite the root of the wing is a large, velvety black spot. Scutellum metallic black with just a little brown dust. Abdomen metallic greenish black with considerable whitish pollen, especially on the sides and at the base. Hypopygium large, black, shining on the inner side, covered with whitish pollen on the outer surface; lamellae nearly round, black, fringed with black hairs, inner appendages shining black. Coxae black with white pollen, fore coxae with yellow pollen and black hairs and bristles on the front surface; femora deep metallic green, dusted lightly with a whitish dust; tips of all femora, middle tibia except apical fourth, basal three-fourths of middle metatarsus reddish-yellow; hind tibiae, tarsi, tips of middle tibiae, tips of fore and middle metatarsi, the last four joints of the fore and middle tarsi reddish-black; front tibia pale yellow, very broad on the apical two-thirds, the lower edge with a series of broad, flat bristles decreasing in size toward the apex. Basal three-fourths of front metatarsus pale yellow. Wings grayish hyaline, costal vein greatly thickened near the base; halteres reddish-yellow. Tegulae pale yellow with black cilia.

Female.—Very much like the male. Face wider, silvery. Antennae normal, arista short about three-fourths as long as face. Legs mostly greenish-black, front tibiae normal; tibiae yellowish except towards the tip; base of metatarsi yellowish.

Type locality.—Manahawkin, New Jersey, May 30, 1910–July 31, 1912, H. S. Harbeck, collector.

Four specimens deposited in the United States National Museum by J. M. Aldrich.

Type.—In collection of M. C. Van Duzee.

10. TACHYTRECHUS OLYMPIAE Aldrich.

Figs. 7, 9, 19.

Macellocerus olympiae ALDRICH, Trans. Amer. Ent. Soc., 1896, vol. 23, p. 83.

Male.—Face not quite as long as eye height, dull yellow, just below antennae, about half as wide as at lower end. Front deep, bronze green, dull. Antennae mostly reddish-yellow, first joint swollen towards tip and about two and one-half times the length of the second and third joints together, black bristly hairs above; second joint quite rudimentary; third joint blackened except at the base. Arista about one and one-third times the height of head, white, base thickened and blackish, lamella black, rounded at apex and the lower point white. Orbital cilia black above, whitish below, an evenly arranged lot of white bristles in the middle of the orbital cilia. Thorax bronze-green, with two small velvety black spots in front of the wing base. Abdomen bronze-green with a whitish dust. Hypopygium large, basal part shining black, central segment bronze-green behind, lamellae whitish, covered with black hairs, those of the margin hardly coarser. Legs mostly yellow, tarsi brownish-black, in certain lights silvery dusted. Front coxae yellow blackish at base; middle and hind coxae with golden dust, hind pair with silvery. Front femur very broad on basal two-thirds, with a large blackish-brown spot on the outside. Wings narrow and slightly brownish. Halteres yellow. Tegulae pale yellow, fringe black.

Female.—All the body colors darker. Face wider, greenish-yellow. Antennae shorter, third joint black, faintly reddish at base. All coxae black; femora more or less dark on the basal part, front femora not swollen but with a gray, silvery area on outside near the base, the hind ones black-green except the apical half or third; tibiae black on the apical third or fourth. Wings longer and much wider than in the male.

Length 6 mm.

Type locality.—Olympia, Washington (Trevor Kincaid), June 3 and July 1, 1894.

Distribution.—Corvallis, Oregon, August 15, 1902; Longmire Springs, Mount Rainier, Washington, August 2, 1905; Algonquin, Illinois, May 24, 1895; Keyport, Washington, August 7, 1905; Potlatch, Idaho, June 20, 1907; Mono Lake, California, July 22, 1911; Owen's Lake, California, July 27, 1911; Pacific Grove, California, May, 1906.

Two cotypes (Cat. No. 24783, U.S.N.M.) and six specimens deposited in United States National Museum Collection by J. M. Aldrich. Originally described from two males and two females (cotypes):

11. TACHYTRECHUS AURATUS Aldrich.

Fig. 8.

Macellocerus auratus ALDRICH, Trans. Amer. Ent. Soc., 1896, vol. 23, p. 83.

Male.—Face slightly longer than height of eye, just below the antennae nearly half as wide as at the lower end, golden yellow, without luster; front very deep metallic-green dusted with brown, dull. Antennae bright yellow, third joint slightly infuscated with brown; first joint nearly three times as long as the second and third, black bristly hairs on upper side, second and third joints quite small. Arista very long, about one and one-half times the height of the head, lamella brownish-black and very large, with a very small white area at the base. Orbital cilia black above, yellowish-white below. Thorax and abdomen bronze-green, in some lights somewhat obscured by a greenish-white pollen dark and more shiny along the apical edges. On each side of thorax, in front of the wings, there are two velvety black spots. Hypopygium large, pubescent, which is denser and yellowish-white at the base, towards the apex with a decided purple luster; lamella very pale yellowish, somewhat triangular, hairs and cilia black. Front coxae pale yellow, infuscated at extreme base, with a silvery dust on front surface; middle and hind coxae brownish black, reddish-yellow at the apex. Middle coxae with a golden pollen on front surface, hind pair lightly dusted with a whitish pollen. Legs mostly yellow, tips of middle and hind tibiae and all the tarsi except the base of the front metatarsus (which is yellow) infuscated with brownish-black. In certain lights the front tarsi and under surface of the middle and hind femora silvery white. Front femora with long curly hairs on the outside; middle and hind femora with large bristly hairs on the underside on the apical half. Wings hyaline. Halteres reddish-yellow, slightly infuscated at base of stem. Tegulae pale yellow with long black fringe.

Female.—Face wider and silvery-white. Front deep metallic-green. Antennae very short, third joint a little larger, mostly brownish-black, yellow along the lower edge. Arista not quite as long as face, no lamella, somewhat of an angle near the base; penultimate joint about four times as long as wide. Legs more reddish, tips of all tibiae and tarsi blackish. Under side of femora, all tibiae and tarsi with silvery dust. Otherwise like the male.

Length, 5 mm.

Type locality.—Moscow, Idaho, June 18, J. M. Aldrich, collector.

Distribution.—Juliaetta, Idaho; Boulder, Colorado; Alum Rock Park, San Jose, California, April 5, 1906; Highland Springs, California, August 9, 1911; Mount Lowe, California, July 4, 1917; originally described from one male and two females. Two cotypes (Cat.

No. 24784, U.S.N.M.) and four specimens deposited in United States National Museum by J. M. Aldrich.

12. TACHYTRECHUS MOECHUS Loew.

Fig. 12.

Tachytrechus moechus LOEW, Neue Beitrage, 1861, vol. 8, p. 40, spec. 1.

Macellocerus moechus LOEW, Mik, Dipterologische Untersuchungen, 1878, p. 5, No. 3.

Male.—Face long and narrow, about twice as wide on the lower part as it is just below the antennae, reaching the lower edge of the eyes, covered with a golden yellow dust, dull, front deep green, nearly dull, in certain lights covered with a brown dust. Antennae mostly deep yellow, first joint thick, about four times longer than the second and third joints together, second joint very rudimentary, third joint somewhat rounded and dark brown on apical half to three-fourths; arista a little longer than the head, black, slightly thickened at base, lamella large, black, nearly as wide as long, slightly emarginate on apical edge, with a very small, white area where it joins the stem. Orbital cilia black on apical third, white below. Thorax and scutellum shiny, deep bronze-green in certain lights dull, covered with a bronze dust. Abdomen metallic bronze green, in certain lights with a silvery dust more prominent on basal portion of segments, a narrow blackish area along the apex of each segment. Hypopygium large, blackish green, the green more noticeable at the apex, lightly covered with a yellow dust which is denser near the middle, lower edge on the sides shiny, reddish-black; lamellae deep yellow, rounded, hair black, short, longer on edges. Legs deep yellow, tips of middle and hind tibiae and front tarsi in certain lights slightly infuscated; middle and hind tarsi deep brown. Sometimes a trace of yellow on the basal half of the middle and hind tarsi. Front coxae yellow, blackish along basal edge; middle and hind coxae blackish gray and yellowish at apex. Wings faintly yellowish-brown; halteres yellow, slightly darker at base of stem; tegulae pale yellow with long black cilia.

Female.—Like the male except the differences noted. Face just below the antennae about three-fourths as wide as at the lower part. Antennae with first joint smaller, more reddish-yellow, less swollen; second joint same color as first, less abortive than in the male; third joint rounded, brownish-black, reddish-yellow only on the inferior side of basis. Arista bare, black, tapering gradually to the tip. Abdomen with a little more green. All coxae grayish-black coated with a silvery dust, apex dull, pale yellow; femora brownish-black with a silvery dust, extreme base of femora, apical fourth of the front femora, front tibiae entirely, and basal half to two-thirds of the hind and middle tibiae reddish-yellow; apical portion of middle and hind tibiae and all tarsi brownish-black.

Length 4.5–5 mm.

Type locality.—Trenton Falls, New York (Osten Sacken).

Type.—In Museum of Comparative Zoology, Cambridge, Massachusetts.

Distribution.—Lafayette, Indiana, June 8 to July 6, 1915, J. M. Aldrich; Algonquin, Illinois, no date; a specimen marked "N. H." with no date; four specimens deposited in United States National Museum Collection by J. M. Aldrich; Franconia, New Hampshire, Mrs. A. T. Slosson, collection United States National Museum.

13. TACHYTRECHUS SANUS Osten Sacken.

Fig. 11.

Tachytrechus sanus OSTEN SACKEN, Western Diptera, 1877, p. 316.

Macellocerus sanus OSTEN SACKEN, Mik. Dipterologische Untersuchungen, 1878, p. 5, No. 3.

Male.—Face about as long as eye height, just below antennae about one-third as wide as at lower end, golden yellow, without luster; front rather dull, dark green, slightly darker in center and on the ocellar triangle, ocelli yellowish. Antennae yellow, first joint large, reddish-yellow, beset with black hairs above longer near the tip; second joint quite small, placed on the other side of a projection of the first, yellowish; third subtriangular, small, brownish, yellowish on the inner side only; arista slender, nearly twice as long as height of head, lamella black, fairly large and snow-white at base, straight on upper edge. Orbital cilia black. Thorax metallic-green, with two distinct bluish lines on the dorsum, which is very slightly grayish-pruinose, especially about the shoulders. Scutellum metallic-green. Abdomen metallic green, in certain lights whitish pruinose with the apical edge of each segment brownish-black. Hypopygium greenish, with a large patch of brownish-yellow velvety down near the root, long hairs yellowish, those on the side black, in certain lights there is a purplish hue on the apical half; lamellae of moderate size, with yellowish cilia on the sides and black on the apical edge. Prevailing color of legs yellow; front coxae of same color dusted with golden yellow, their extreme root blackish; front, middle, and hind femora, except the base of the latter, all tibiae except the tip of the hind pair and front tarsi except last joint yellow, basal two thirds of middle metatarsi yellowish; front tibiae and tarsi with a silvery dust; middle and hind tarsi, extreme tip of hind tibiae, base of hind femora and last joint of front tarsi brownish-black; front tibiae a row of large black macrochaetae on the front and outside, those of the latter are broader, between these two rows is a row of short bristly hairs. Middle tibia has one large, black macrochaeta on the inner flexor side, near the apex. Wing hyaline; halteres deep yellow slightly infuscated at the base of the stem; tegulae pale yellow, cilia long, black.

Length 5 mm.

Type locality.—Webber Lake, Sierra County, Sierra Nevada, July 22, two males. Osten Sacken.

Type.—In Museum of Comparative Zoology, Cambridge, Massachusetts. Sixteen specimens deposited in United States National Museum Collection by J. M. Aldrich.

Distribution.—Craig's Mountain, Idaho, Longmire's Springs, Mount Rainier, Washington, August 2, 1905; Fallen Leaf, California, 6500 feet, July 16, 1917; Emigrants Canyon, Wasatch Mountains, Utah, July 8, 1911, 7000 feet, July 21, 1917; Mono Lake, California, July 22, 1911, Tennessee Pass, Colorado, 10240 feet, July 11, 1919.

Female.—Very much like the male except the arista are short and normal; legs mostly black.

14. TACHYTRECHUS GRANDITARSUS, new species.

Fig. 16.

Male.—Face nearly twice as wide on lower part as immediately below antennae; face stops far short of lower edge of eyes; face and entire front green coated with a dull, yellowish dust. Ocelli yellowish. Orbital cilia black on upper third, lower two thirds white. Antennae short, black, joints of nearly equal length; first joint with a few black hairs at the apex on the upper side; arista black and long. Thorax and scutellum bright green well covered with a white dust. Abdomen bright green, in certain lights well covered with a white dust. Hypopygium large and coated with a white dust, it is quite changeable according to the light, varying from white to purple and dark blue; lamellae very long, brown black, tapering gradually from the base to the apex, much narrower at the apex, width of base about one-sixth of the total length, inner edge of lamella nearly straight; all the hair of the lamella black except that on the outer edge which is white and quite long. Legs lightly dusted with white. Basal two thirds of front femora green, that of middle and hind pairs more bluish, tips of all femora, all tibiae and bases of fore and middle tarsi yellow, hind tarsi all brownish black. Middle tarsi are greatly modified, all the joints are very broad and flattened, second joint about four times as long as broad and appearing slightly twisted, the short bristly hairs are arranged in rows. Wings broad and hyaline. Tegulae pale yellow with a small tuft of short black bristles on upper side, near the middle, stems brownish yellow.

Female.—Very similar except the face and front are slightly wider and the middle tarsi are normal.

Length 5-6 mm.

Some specimens vary in color from the general green color to a decided bronze with a reddish reflection in certain lights.

Type locality.—Jacumba Spring, California, June 28, 1917, J. M. Aldrich, collector.

Distribution.—Garfield, Utah, July 9, 1911; Lake Elsinore, California, August 2, 1911; Tempe, Arizona, June 19 to 21, 1917; Saltair, Utah; Great Salt Lake, July 5, 1919, J. M. Aldrich, collector. Los Cerritos, California, April 7, 1915; San Diego County, Desert Edge, California, April 1915, M. C. Van Duzee, collector. Two specimens labeled "Laguna, Calif." and one specimen labeled "Aliso, C." No date nor collector's name given.

Type, male.—*Allotype*, female and fourteen paratypes. Cat. No. 24134, U.S.N.M.

Allied to *T. vorax* Loew but easily separated from that species by being a brighter green, without the spot in the wing and by having the middle tarsi greatly modified.

15. TACHYTRECEUS ANGUSTIPENNIS Loew.

Tachytrechus angustipennis Loew, Centuries, 1861, pt. 2, p. 83, No. 64.

Tachytrechus angustipennis Loew, Aldrich, Trans. Amer. Ent. Soc., 1896, vol. 23, p. 82.

Male.—Face broad, reaching slightly below lower edge of eyes; pale, dull, yellow dust, just below the antennae; about two-thirds as wide as at lower end. Front dusted with green and brown according to the light. Ocelli deep yellow. Antennae small, black, second joint the smallest. Arista black. Orbital cilia black on apical fourth, white on lower three-fourths. Thorax, dorsum, green, covered with a grayish ocher-yellow dust, which makes the green ground color but little apparent; in the middle are two brown longitudinal lines, which diverge a little behind and are very much shortened; the single bristles are inserted upon brownish-black spots. In certain lights there are several small yellowish-white spots. Scutellum a little more brown than the dorsum of the thorax. Abdomen green, covered with a rather thick whitish dust, giving it a checkered appearance; in certain lights the middle line and posterior edges of the segments appear almost black. Hypopygium black, with whitish dust; lamellae of moderate size, rounded oval, with short black hairs. Coxae black with yellowish-white dust, fore coxae beset with extremely short, delicate, sparse hairs; on inner side at apex are a few stiff, long, black bristles. Femora and tibiae greenish or bluish, with a little silver dust, tarsi more of a blackish. Knees reddish. On the hind side of the hind tibiae are two or three remarkably flattened bristles. Wings long and narrow, the costa distinctly thickened upon the middle of the first section. Halteres deep yellow, darker at the base. Tegulae pale yellow, cilia long and black.

Length 4 mm.

Female.—Very much like the male. The color is more of a bronze color; hind tibiae without the flattened bristles on the hind side.

Type locality.—District of Columbia.

Distribution.—District of Columbia; Chisos Mountains, Brewster County, Texas, June 10 to 12, 1908, Mitchell and Cushman, collectors; Mount Lowe, California, July 4, 1917; Austin, Texas, May 11 to 18, 1900; Pasadena, California, August, R. W. Doane; Pacific Grove, California, May 5, 1906; Owen's Lake, California, July 27, 1911; Stanford University, California, April 12, 1906; Jacumba Springs, California, June 28, 1917, J. M. Aldrich; Indian School. Pyramid Lake, Nevada, July, 1911; Mono Lake, California, July 23, 1911; Highland Springs, Lake County, California, August 9, 1911, J. M. Aldrich, collector; San Diego, California, April 6, 1915. M. C. Van Duzee. Brewster County, Texas, Chisos Mountains, June 10 to 12, 1908, Mitchell and Cushman, collectors, United States National Museum Collection.

Type.—In Museum of Comparative Zoology, Cambridge, Massachusetts. Eight specimens deposited in United States National Museum Collection by J. M. Aldrich.

16. TACHYTRECHUS PROTERVUS Melander.

Tachytrechus protervus MELANDER, Can. Ent., 1900, vol. 32, p. 143, figs. 6, 7.

Tachytrechus junctus COQUILLET, Proc. Ent. Soc. Wash., 1910, vol. 12, p. 125.

Male.—Face heavily coated with a silvery dust, below the antennae about half as wide as at the lower end. Front dull, violet brown. Antennae mostly dull yellow; first joint enlarged at apex; second joint with black bristles just below apex; third joint about as long as the first two, with a brown infuscation along upper half. Arista dark brown, thickened basally and not quite as long as the face. Orbital cilia black above, yellowish below. Thorax piceous green; above the base of the wing is a horizontal velvety black spot, above this the dorsum is cupreous; a large silvery area in front of this black spot; on the posterior corners touching the basal corners of the scutellum is a rounded silvery spot. Scutellum like dorsum of thorax. Abdomen dark green, silvery-dusted along the sides, incisures well marked. In some lights there is a reddish or violaceous tinge. Hypopygium piceous, lamellae subrectangular, dark, hairy, evenly fringed with short black hairs, which are longer dorsally toward base. Pleura black, silvery dusted; coxae concolorous except extreme tip, fore coxae bronze-dusted in front. Legs black except the following: Tips of femora below, basal two thirds of middle and hind tibiae and front metatarsi, rather dark yellowish. Forelegs ornamented as follows: Tibiae thickened, dusted with yellow on anterior surface, and with longitudinal rows of short black bristles; tarsi compressed, first joint a little shorter than the rest together.

pulvilli large; third joint in middle tarsus bent. Wings hyaline; posterior crossvein bent slightly inward and with a faint cloud. Halteres yellow. Tegulae yellow, cilia black.

Female.—Differs as follows from the male: Face a little more ochraceous. Infra-alar cilia a little stronger. Vertex, thorax, and abdomen slightly more brassy, brighter green. Red at tip of femora more spread, and at base of middle and posterior tibiae more restricted; fore tibiae yellow, with ordinary bristles; fore tarsi not compressed, first joint equal to next three. Wings with faint yellowish tinge, crossvein more oblique.

Length, male 4.25 mm.; female, 5.5 mm.

Type locality.—Clementon, New Jersey, May 10, 1896, one male and one female from Delaware Water Gap, New Jersey, July 8. Both specimens were received from Mr. C. W. Johnson.

Type.—In the collection of A. L. Melander.

The type of *Tachytrechus junctus* Coquillett is in the United States National Museum Collection as Cat. No. 13091 U.S.N.M.

Other localities.—Hammonton, New Jersey, August 23, 1903, and Lucaston, New Jersey, September 28, 1903, H. S. Harbeck, collector. Lucaston, New Jersey, August 6, 1911, C. T. Greene, collector. Manahawkin, New Jersey, September 5, 1905, H. S. Harbeck, collector. United States National Museum Collection.

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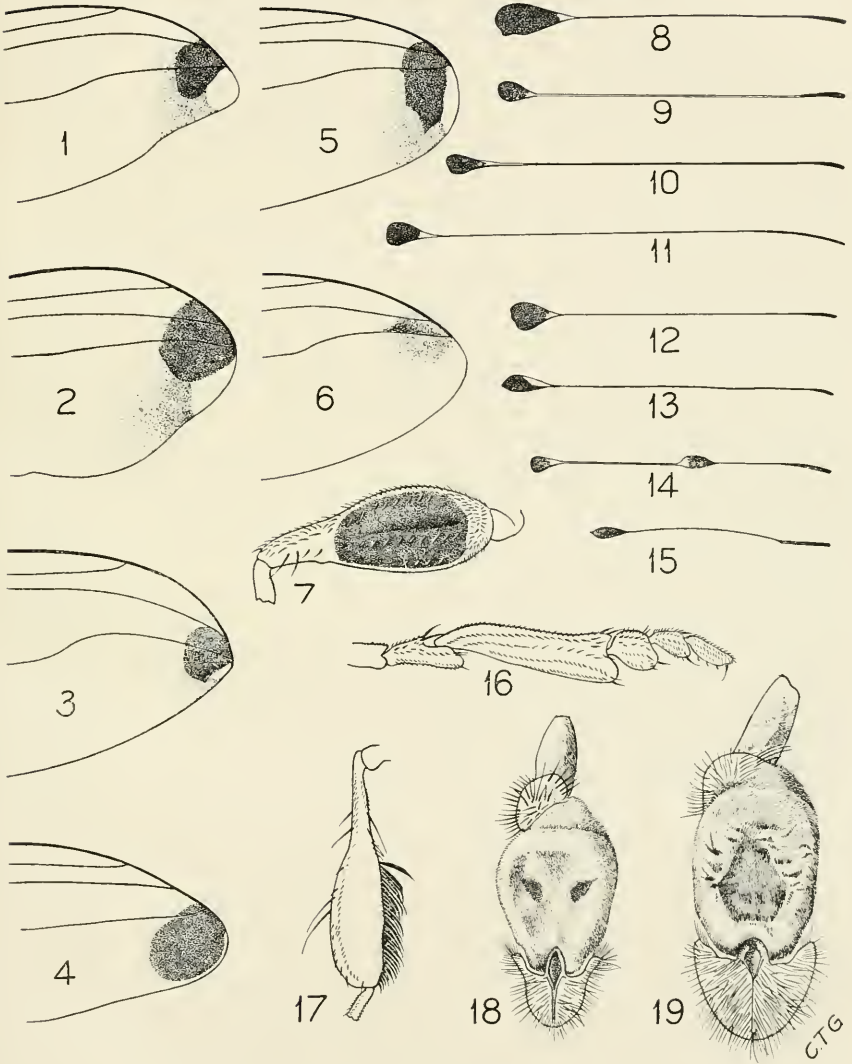
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EXPLANATION OF PLATE.

Drawings by C. T. Greene.

- FIG. 1. *Tachytrechus vorax*, apex of wing of male.
 2. *T. rotundipennis*, apex of wing of male.
 3. *T. volitans*, apex of wing of male.
 4. *T. floridensis*, apex of wing of male.
 5. *T. simulatus*, apex of wing of male.
 6. *T. simulatus*, apex of wing of female.
 7. *T. olympiae*, front femur of male.

8. *T. auratus*, arista of male.
9. *T. olympiae*, arista of male.
10. *T. tenuiseta*, arista of male.
11. *T. sanus*, arista of male.
12. *T. moechus*, arista of male.
13. *T. bipunctatus*, arista of male.
14. *T. binodatus*, arista of male.
15. *T. laticrus*, arista of male.
16. *T. granditarsus*, middle tarsus of male.
17. *T. laticrus*, front tibia of male.
18. *T. bipunctatus*, hypopygium of male.
19. *T. olympiae*, hypopygium of male.



FLIES OF THE GENUS TACHYTRECHUS.

FOR EXPLANATION OF PLATE SEE PAGES 20 AND 21

